TITLE

by

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DISSERTATION

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for the degree of

DOCTOR OF PHILOSOPHY

2008

MAJOR: Physics

Approved by:

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Advisor

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This is a dedication.

"The fact that we live at the bottom of a deep gravity well, on the surface of a gas covered planet going around a nuclear fireball 90 million miles away and think this to be normal is obviously some indication of how skewed our perspective tends to be."

— Douglas Adams, The Salmon of Doubt: Hitchhiking the Galaxy One Last Time

ABSTRACT

TITLE HERE

by

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August 2008

Advisor: Professor Your Prof

Major: Physics

Degree: Doctor of Philosophy

Abstract here

ACKNOWLEDGEMENTS

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List of Symbols

Symbol	Description	Unit
A	area	cm^2
B	magnetic field	T
E_F	Fermi energy	eV
I	current	A
I_ds	drain current	A
L	length	µm
L	channel length	µm
$m^\star$	effective mass	k
R_c	contact resistance	$\mathrm{k\Omega\,\mu m}$
R_H	Hall coefficient	$\mathrm{m^3\,C^{-1}}$
T	temperature	K
V	voltage	V
V_bg	backgate voltage	V
V_ds	drain voltage	V
V_H	Hall voltage	V
μ	mobility	$\mathrm{cm^2\,V^{-1}\,s^{-1}}$
μ_e	electron mobility	$\mathrm{cm^2\,V^{-1}\,s^{-1}}$
μ_FE	field-effect mobility	$\mathrm{cm^2\,V^{-1}\,s^{-1}}$
μ_H	Hall mobility	$\mathrm{cm^2\,V^{-1}\,s^{-1}}$
μ_p	hole mobility	$\mathrm{cm^2\,V^{-1}\,s^{-1}}$
ρ	resistivity	$\mathrm{\Omega\,cm}$
σ	conductivity	µS
τ	lifetime	s

Φ_B	barrier height	eV
Φ_M	metal work function	eV
Φ_S	semiconductor work function	eV
χ	electron affinity	eV

List of Physical Constants

Symbol	**Quantity**	**Value**
k_{B}	Boltzmann's constant	$1.380\,66 \times 10^{-23}\,\mathrm{J\,K^{-1}}$
		$8.617\,34 \times 10^{-5}\,\mathrm{eV\,K^{-1}}$
ϵ_0	dielectric constant	$8.854\,18 \times 10^{-12}\,\mathrm{A^2\,s^4\,kg^{-1}\,m^{-3}}$
e	elementary charge	$1.602\,18 \times 10^{-19}\,\mathrm{C}$
eV	electron volt	$1.602\,18 \times 10^{-19}\,\mathrm{J}$
c	speed of light	$2.997\,92 \times 10^{8}\,\mathrm{m\,s^{-1}}$
h	Planck's constant	$6.626\,07 \times 10^{-34}\,\mathrm{J\,s}$
$\hbar$	reduced Planck's constant	$1.054\,57 \times 10^{-34}\,\mathrm{J\,s}$ $(h/2\pi)$
$R_{\mathrm{K-90}}$	von Klitzing constant	$25\,812.807\,455\,55\,\Omega$
m_e	electron mass	$9.109\,383 \times 10^{-31}\,\mathrm{kg}$
$k_{\mathrm{B}}T$	Thermal energy	$0.025\,86\,\mathrm{eV}$ $(T = 27^{\circ}\mathrm{C})$
		$0.025\,26\,\mathrm{eV}$ $(T = 20^{\circ}\mathrm{C})$

Source: CODATA Recommened Values of the Fundamental Physics Constants: 2014, Mohr *et al.*[1]

Acronyms

SB Schottky barrier

Chapter 1

Chapter Title

1.1 Section Title

Contents here with Schottky barrier (SB).

References

[1] P. J. Mohr, D. B. Newell, and B. N. Taylor. Codata recommended values of the fundamental physical constants: 2014. *ArXiv e-prints*, jul 2015.

Autobiographical Statement

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